

# Flowering plant species and their relative attraction to honey bees and native California bees in Albany and N. Berkeley

December 2003

<u>Plant Species (Family)</u>	<u>Common Name (plant form)<sup>1</sup></u>	<u>Plant Origin<sup>2</sup></u>	<u>Floral Reward<sup>3</sup></u>	<u>Flowering Period</u>	<u>Attraction<sup>4</sup></u> HB      NB	<u>Native Bee Visitors</u>
<b>AIZOACEAE</b>						
<i>Aptenia cordifolia</i> 'Red Apple'	'Red Apple' succulent (Gc)	Ex	N	Sum.	VC	R-O
<b>AMARYLLIDACEAE</b>						
<i>Agapanthus orientalis</i>	Lily of the Nile (H)	Ex	N	Spr.-Sum.	R <sup>5</sup>	R <sup>5</sup>
<b>ANACARDIACEAE</b>						
<i>Schinus molle</i>	California Pepper Tree (Tr)	Ex	N	Sum.-Fall	C	-
<i>S. terebinthefolius</i>	Brazilian Pepper Tree (Tr)	Ex	N	Fall	R-C	R
<b>APIACEAE</b>						
* <i>Eryngium</i> spp. (blue fl. species)	Sea Holly, Amethyst Eryngium (W/H)	Ex	N	Sum.	R	C
<i>Foeniculum vulgare</i>	Fennel (W/H)	Ex	P		R	C
<b>ARALIACEAE</b>						
<i>Hedera helix</i>	English Ivy (W/H, V)	Ex	N	Fall	VC	-
<b>ASTERACEAE</b>						
<i>Arctotheca calendula</i>	Cape Weed (Gc)	Ex	P	Spr.-Sum.	R	O
* <i>Aster x frikartii</i>	Monch (W/H)	Ex	P, N	Sum.-Fall	O	C
* <i>Asteriscus maritimus</i>	Gold Coin (W/H)	Ex	P,N	All yr.	-	O-C
* <i>Bidens ferulifolia</i> + cultivars	Bidens (H)	Ex	P,N	Sum.-Win.	-	O
<i>Calendula</i> spp.	Pot Marigold (H)	Ex	P	Spr.-Sum.	-	R-O
* <i>Centaurea cineraria</i> (yell. fl. species)	Dusty Miller (W/H)	Ex	N, P	Sum.	R-O	O
<i>Chrysanthemum frutescens</i>	Marguerite, Paris Daisy (Sh)	Ex	N	Sum.	-	O
<i>C. maximum</i>	Shasta Daisy (W/H)	Ex	P	Spr.-Sum.	-	R-O <sup>5</sup>
						Meg(l), sb

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* <i>Coreopsis grandiflora</i> cultivars	(H)	Ex	P,N	Sum.	-	O	Ant( <u>Mel</u> )
* <i>C. tinctoria</i>	Calliopsis (H)	Ex	P,N	Sum.-Fall	-	C-VC	Ant( <u>Mel</u> ), sb
* <i>C. verticillata</i>	(H)	Ex	P,N	Sum.-Fall	?	O <sup>5</sup>	Meg(l)
* <i>Coreopsis</i> spp. (multi-whorled petals)	Tickseed (H)	Ex	P, N	Sum.	-	R-VC	Ant( <u>Mel</u> )
* <i>Cosmos bipinnatus</i>	Cosmos (H)	Ex	P	Sum.-Fall	R-O	O-C	sb, Ant( <u>Mel</u> ), Meg(l+ <u>Coel</u> ), B, H( <u>Aga</u> )
<i>Cynara scolymus</i>	Globe Artichoke (W/H)	Ex	P,N	Fall	-	C	C, Meg(l), sb, B
<i>Echinacea purpurea</i>	Purple Coneflower (W/H)	Ex	N	Sum.	O <sup>5</sup>	O <sup>5</sup>	Ant, Meg(s+ <u>Coel</u> )
<i>Erigeron karvinskianus</i>	Mexican Daisy, Daisy Fleabane (H, Gc)	Ex	P	Spr.-Sum.	-	R-O	Meg(l+s+ <u>Osm</u> ), sb, mb, Ant
* <i>Gaillardia x grandiflora</i> + cultivars	Gaillardia (H)	Ex	P, N	Sum.-Fall	-	R-O <sup>5</sup>	Meg(l), Ant( <u>Mel</u> )
* <i>Grindelia</i> spp.	Gumplant (W/H)	NC	P, N	Sum.-Fall	-	O-C	Meg(l+s), Ant, sb, <u>Cer.</u> , H( <u>Aga</u> )
* <i>Helenium puberulum</i>	Sneezeweed (H)	NC	P, N	Sum.	-	O	Meg(l+s), sb
* <i>Helianthus annuus</i>	Sunflower (H)	NC	P, N	Sum.	O	C	Ant( <u>Mel</u> ), Meg(l), B
* <i>H. annuus</i> cultivars	Sunflower Cult. (H)	NC	P, N	Sum.	R <sup>5</sup>	O <sup>5</sup>	Ant( <u>Mel</u> ), Meg(l), B
* <i>H. gracilis</i>	Slender Sunflower (H)	NC	P,N	Sum.	-	R <sup>5</sup>	Ant( <u>Mel</u> )
<i>Helichrysum petiolare</i>	Licorice Plant (W/H)	Ex	P	Fall	-	O	sb, mb
* <i>Madia elegans</i>	Elegant Madia (H)	NC	P,N	Sum.	-	C	Ant( <u>Mel</u> ), Meg(l), sb
<i>Picris echioides</i>	Bristly Ox-Tongue (H)	Ex	P, N	Sum.	R <sup>5</sup>	O-C	Ant( <u>Mel</u> ), sb
* <i>Rudbeckia</i> vars.	Coneflower (H)	Ex	P, N	Sum.	-	C	Ant( <u>Mel</u> )
<i>Tagetes</i> vars.	Marigold (H)	Ex	P, N	Sum.	-	C	Ant, Meg(l)
<i>Taraxacum</i> sp.	Dandelion (H)	Ex	P, N	Sum.	?	O <sup>5</sup>	Meg(s)
* <i>Tithonia rotundifolia</i>	Mexican Sunflower (W/H)	Ex	P, N	Sum.	-	O <sup>5</sup>	Meg(l+s),Ant( <u>Mel</u> )

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<b>BORAGINACEAE</b>						
* <i>Borago officinalis</i>	Borage (H)	Ex	N	Spr.	C      R-O	B
<i>Cerinthe major</i> ‘Purpurascens’	Honeywort (H)	Ex	N	Spr.	-      R-O <sup>5</sup>	B
* <i>Echium candicans</i>	Echium, Pride of Madeira (Sh)	Ex	P, N	Spr.	C      R-C	B, Ant, sb, Meg(Osm)
<b>BRASSICACEAE</b>						
Misc. Brassicaceae	Chard, Mustard Greens, Wild Mustard (H)	Ex	P, N	Spr.	R      O	And, sb, mb, Meg(l+s)
<i>Lobularia maritima</i>	Sweet Alyssum (H)	Ex	N	Spr.-Sum.	-      O	sb
<b>CAPRIFOLIACEAE</b>						
<i>Abelia grandiflora</i>	Glossy Abelia (Sh)	Ex	N	Sum.-Fall	O-C	-
<b>CISTACEAE</b>						
<i>Cistus pulverulentus</i> ‘Sunset’	Rock Rose (Sh)	Ex	N	Spr.-Sum.	R <sup>5</sup> R-O	B, sb, Meg(s), H
<b>DIPSACACEAE</b>						
* <i>Scabiosa columbaria</i>	Pincushion Flower (H)	Ex	N	Sum.-Fall	O-C      R-O	B, H, Meg(l), Ant(Mel)
<b>ERICACEAE</b>						
<i>Arctostaphylos</i> sp. (H#137)	Manzanita (Sh)	NC	N	Fall	C      O	B
<i>Arctostaphylos</i> sp. (1050 Peralta)	Manzanita (Sh)	NC	N	Sum.-Fall	O <sup>5</sup> R <sup>5</sup>	B
<b>ESCALLONIACEAE</b>						
<i>Escallonia exoniensis</i> ‘Fradesii’	Frades Escallonia (Sh)	Ex	N	Sum.	C      O	B
<b>FABACEAE</b>						
<i>Lathyrus</i> sp.	Sweetpea (H)	Ex	N	Sum.	O      O	sb, B, Meg(l)
* <i>Lotus corniculatus</i>	Bird's Foot Trefoil (H)	Ex	N	Sum.	?	O <sup>5</sup> Meg(s)

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					HB	NB	
<i>Trifolium repens</i>	White Clover (H)	Ex	N	Spr.-Sum.	R-O	R-O	B, sb, Meg(s+Osm)
<i>Vicia villosa</i>	Vetch (H)	Ex	N	Spr.	R <sup>5</sup>	R <sup>5</sup>	Ant(l), Meg(Osm)
<b>GERANIACEAE</b>							
* <i>Geranium incanum</i> 'Sugar Plum'	Crane's Bill (H, Gc)	Ex	N	Spr.	R-O	R-O	Meg(s), sb
<i>Geranium</i> sp. (H# 94)	Geranium (H)	Ex	N	Spr.-Sum.	R	O	sb, <u>Cer</u> , B
* <i>Pelargonium graveolens</i>	Scented Geranium (Sh)	Ex	N	Spr.-Sum.	O-C	R-O	sb, <u>Cer</u> , Meg(l+Osm), mb, lb
<b>HIPPOCASTANACEAE</b>							
<i>Aesculus californica</i>	CA Buckeye (Tr)	NC	N	Sum.	R-O	R	sb
<b>HYDROPHYLLACEAE</b>							
* <i>Phacelia tanacetifolia</i>	Tansy Phacelia (H)	NC	P, N	Spr.	R-O	C	B, sb, mb, And
* <i>P. grandiflora</i>	(W/H)	NC	P,N	Spr.-Sum.	R <sup>5</sup>	O <sup>5</sup>	B, Ant(l), Meg, H
<b>LAMIACEAE</b>							
* <i>Agastache rugosa</i>	Korean Hummingbird Mint (H)	Ex	P, N	Sum.	O-C	O	B, sb
* <i>A. rupestris</i>	Licorice Mint, Sunset Hyssop (H)	Ex	N	Sum.	R-O	O-C	X, sb
* <i>Lavandula</i> spp.	Lavender (W/H)	Ex	N	Spr.-Fall	R-C	R-O	B, Ant, Meg(l+s), X
* <i>Marrubium vulgare</i>	Horehound (W/H)	Ex	N	Spr.-Sum.	O	O	Meg(s+Osm)
* <i>Monardella villosa</i> vel. aff.	Coyote Mint (W/H)	NC	N	Sum.	O	O	Meg(s), B
* <i>Nepeta</i> spp.	Catmint, Catnip (H)	Ex	N	Sum.	R-C	R-C	Meg(l), mb, B, Ant
* <i>Perovskia atriplicifolia</i>	Russian Sage (Sh)	Ex	N	Sum.	C	-	
* <i>Origanum</i> spp.	Oregano (Sh, Gc)	Ex	N	Sum.	C	R-O	sb, Meg(s)
* <i>Rosmarinus officinalis</i>	Rosemary (Sh)	Ex	N	Fall-Spr.	VC	O	sb, Meg(s), X

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					HB	NB	
* <i>Salvia chamaedryoides</i>	Germander Sage (W/H)	Ex	N	Spr.-Fall	-	R-O <sup>5</sup>	Meg(Anthid)
<i>S. clevelandii</i>	Cleveland Sage, CA Blue Sage (W/H)	Ex	N	Sum.	R	R	Meg(l)
<i>S. 'Indigo Spires'</i>	Indigo Spires Salvia (W/H)	Ex	N	Sum.	O	O	B, Meg(l)
<i>S. leucophylla</i> vel. aff. (H# 71)	Purple Sage (Sh)	Ex	N	Spr.	O	R-O	X, B, Meg(Osm)
* <i>S. uliginosa</i>	Bog Sage (W/H)	Ex	N	Sum.-Fall	R-C	R-O <sup>5</sup>	X, Meg(l), B, sb, Ant
* <i>Stachys ajugoides</i> spp. <i>rigida</i>	Rigid Hedgenettle (H)	NC	N	Spr.	O	O	Meg(Osm)
* <i>S. bullata</i>	California Hedgenettle (H)	NC	N	Spr.-Sum.	-	O <sup>5</sup>	Ant(urb)
* <i>S. byzantina</i>	Lamb's Ears (H)	Ex	N	Sum.	O	-	
* <i>Teucrium x lucidrys</i> ( <i>T. chamaedrys</i> )	Germander (Sh)	Ex	N	Sum.	VC	R	Meg(l), B
* <i>Trichostema lanatum</i>	Woolly Blue Curls (Sh)	NC	N	Sum.	O	R <sup>5</sup>	X, sb
<b>LILIACEAE</b>							
<i>Alstroemeria aurea</i>	Lily (H)	Ex	N	Sum.	R-O	R-O <sup>5</sup>	Meg(l), B, sb
<b>LOASACEAE</b>							
* <i>Mentzelia lindleyi</i>	Blazing Star (H)	NC	P	Spr.	-	R <sup>5</sup>	B
<b>MALVACEAE</b>							
* <i>Anisodontea</i> 'Tara's Pink'	Cape Mallow (Sh)	Ex	N	Spr.-Fall	R <sup>5</sup>	R-O <sup>5</sup>	sb, B, Ant, Meg, And
<i>Lavatera maritima</i> 'Bicolor'	Shrub Mallow (Sh)	Ex	N	Spr.-Fall	R	?	
<b>MYRTACEAE</b>							
<i>Leptospermum scoparium</i> (white and pink fl. cultivars)	New Zealand Tea Tree (Sh)	Ex	N	Sum.-Fall	C	-	
<i>Myrtus communis</i>	Myrtle (Sh)	Ex	N, ?P	Sum.-Fall	O <sup>5</sup>	R	Meg(l)
<i>Tristaniopsis laurina</i>	Water Gum (Tr)	Ex	N	Sum.	C-VC	R-O	sb, B

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<b>OLEACEAE</b>						
<i>Ligustrum japonicum</i> ‘Texanum’	Wax-leaf Privet (Sh)	Ex	N	Sum.	C	-
<i>L. ovalifolium</i>	CA Privet (Sh)	Ex	N	Sum.	C      O	B
<b>ONAGRACEAE</b>						
* <i>Clarkia unguiculata</i>	Elegant Clarkia (H)	NC	N	Spr.-Sum.	R-O      O	B, And, sb, Meg(Osm)
<i>Gaura lindheimeri</i>	(W/H)	Ex	P, N	Sum.	O <sup>5</sup> R <sup>5</sup>	Meg(l), sb
* <i>Oenothera elata</i> ssp. <i>hookeri</i>	Hooker Evening Primrose (H)	NC	P,N	Sum.	R <sup>5</sup> R <sup>5</sup>	Meg(s+l)
<i>O. glazioviana</i> vel. aff.	Evening Primrose (W/H)	Ex	P	Sum.	-      O-C <sup>5</sup>	Meg(l)
<b>PAPAVERACEAE</b>						
* <i>Eschscholzia californica</i>	CA Poppy (H)	NC	P	Spr.-Sum.	-      R-O	B, And, Meg(l), H
<i>Papaver orientale</i>	Oriental Poppy (H)	Ex	P, ?N	Spr.-Sum.	O <sup>5</sup> R <sup>5</sup>	
<b>PHILADELPHACEAE</b>						
<i>Carpenteria californica</i>	Bush Anemone (Sh)	NC	P	Spr.	-      O	B, Osm, sb
<b>PITTOSPORACEAE</b>						
<i>Pittosporum tobira</i>	Japanese Mock Orange (Sh)	Ex	N	Spr.	R-O <sup>5</sup> R-O <sup>5</sup>	B, sb, X
<b>POLEMONIACEAE</b>						
* <i>Gilia achilleifolia</i>	California Gilia, Blue Gilia (H)	NC	N	Spr.	-      R <sup>5</sup>	mb
* <i>G. capitata</i> spp. <i>capitata</i>	Globe Gilia (H)	NC	N	Spr.	O      O	Meg, sb, And
* <i>G. tricolor</i>	Bird's Eyes (H)	NC	N	Spr.	-      R <sup>5</sup>	mb
<b>POLYGONACEAE</b>						
<i>Eriogonum arborescens</i>	Buckwheat (Sh)	NC	N	Sum.	R <sup>5</sup> R-O	sb, B

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<i>E. fasciculatum</i>	California Buckwheat (Sh)	NC	N	Spr.-Fall	-	O <sup>5</sup>	sb
<i>E. giganteum</i>	Buckwheat (Sh)	NC	N	Sum.	C	O	sb, mb, B
* <i>E. grande</i> var. <i>rubescens</i>	San Miguel Island Buckwheat (H)	NC	N	Sum.	O	O-C	Meg(s), Ant(urb), B, sb, H
<i>E. latifolium</i>	Coast Buckwheat (H)	NC	N	Sum.	-	O <sup>5</sup>	Meg(s), B, Ant
* <i>E. nudum</i>	Buckwheat (H)	NC	N	Sum.	R-O	C	B, sb, Meg(s)
<i>Persicaria capitata</i>	Knotweed (H)	Ex	N	Spr.-Fall	R	R	sb, B
<b>RHAMNACEAE</b>							
* <i>Ceanothus</i> 'Julia Phelps'	Lilac (Sh)	NC	N	Spr.	O	O-C	sb, B, Ant
* <i>Ceanothus</i> 'Ray Hartman'	Lilac (Sh)	NC	N	Spr.	R-O	O-VC	B, H, Ant, X, sb
<i>Rhamnus californica</i> 'Mound San Bruno'	Coffeeberry (Sh)	NC	N	Sum.	C	-	
<b>ROSACEAE</b>							
<i>Cotoneaster franchetii</i>	Cotoneaster (Sh)	Ex	N	Sum.	R-O	R-O	B, sb, H
<i>C. lacteus</i>	Cotoneaster (Sh)	Ex	N	Sum.	R-O	O	Meg(l), B, sb
<i>Crataegus laevigata</i>	Hawthorn (Tr)	Ex	P, N	Spr.	C	-	
<i>Crataegus phaenopyrum</i>	Washington Thorn (Tr)	Ex	N	Sum.	C	O	B, sb, mb
<i>Heteromeles arbutifolia</i>	Toyon (Tr, Sh)	NC	N	Sum.	O-C	O-C	B, sb, And, lb
* <i>Holodiscus discolor</i>	Ocean Spray (Sh)	NC	N	Sum.	R	O <sup>5</sup>	B, sb
* <i>Horkelia marinensis</i>	Pt. Reyes Horkelia (H, Gc)	NC	N	Sum.	R-O	VC	B, Meg(s)
<i>Lyonothamnus floribundus</i> spp. <i>asplenifolius</i>	Fernleaf Catalina Ironwood (Tr)	NC	N	Sum.	C-VC	O	B, sb
<i>Malus floribunda</i>	Crab Apple (Tr)	Ex	N	Spr.	R-O	O	mb, Meg(Osm), X
<i>Prunus ilicifolia</i>	Hollyleaf Cherry (Tr)	NC	P	Spr.-Sum.	C	R	sb

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<i>Prunus lusitanica</i>	Portugal Laurel (Tr, Sh)	Ex	P	Spr.-Sum.	-	R-C	B, sb
<i>Pyracantha</i> sp.	Firethorn (Tr, Sh)	Ex	N	Spr.	R-C <sup>5</sup>	-	
<i>Rosa</i> 'Nozomi'	Nozomi Rose (Gc)	Ex	P	Sum.	-	R <sup>5</sup>	sb
<i>Rubus discolor</i>	Himalayan Blackberry (V)	Ex	P, N	Spr.	O	O-C	B, sb, And, H, Meg(l+Osm)
<b>RUTACEAE</b>							
<i>Citrus</i> spp.	Orange, Lemon (Tr, Sh)	Ex	N	Spr.	R <sup>5</sup>	R <sup>5</sup>	sb
<b>SCROPHULARIACEAE</b>							
* <i>Collinsia heterophylla</i>	Chinese Houses (H)	NC	N	Spr.	-	R <sup>5</sup>	B
<i>Hebe</i> 'Blue Elf'	Veronica (Sh)	Ex	N	Sum.	R-C	O-C	B, sb, X, Meg(l+s+Osm), And
* <i>Linaria purpurea</i>	Toadflax (W/H)	Ex	N	Sum.	-	O	B
<i>Mimulus aurantiacus</i>	Sticky Monkey flower (Sh)	NC	N	Spr.-Sum.	-	R	Ant, Meg(Osm)
<i>Penstemon x gloxinoides</i> 'Midnight'	Midnight Penstemon (W/H)	Ex	N	Spr.-Sum.	R-O	O	B, Ant, sb, Meg(Osm)
<b>SOLANACEAE</b>							
<i>Lycopersicon esculentum</i>	Commercial Tomato (H)	Ex	P, N	Sum.	R <sup>5</sup>	R <sup>5</sup>	sb, Ant(urb)
<b>VERBENACEAE</b>							
* <i>Caryopteris x clandonensis</i>	Blue Mist (W/H)	Ex	N	Sum.-Fall	R <sup>5</sup>	R <sup>5</sup>	Ant(urb),
<i>Phyla nodiflora</i>	Lippia (H, Gc)	Ex	N	Sum.	R-C	R-O	sb, Meg(s)

1. Plant form: Tr = tree; Sh = shrub; W/H = woody and herbaceous; H = herbaceous; Gc = ground cover; V = vine

2. NC = native to California; Ex = exotic to California

3. P = pollen; N = nectar

4. HB = Honey bee; NB = Native bee; R = rare, Ave. 0.5 to <1 bee per 3 min.; O = occasional, Ave. 1 to <5 bees per 3 min.; C = common, Ave. 5 to <10 bees per 3 min.; VC = very common, Ave. ≥10 bees per 3 min.

5. Estimated visitation frequency based on flowering patch size less than 1.5m x 1.5m.

6. \* = Recommended plant species.

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<b>Bee Groups:</b>						
sb – small bee	B – <u>Bombus</u>	Meg – Megachilid		Ant – Anthophorid		
mb – medium bee	X – <u>Xylocopa</u>	Meg( <u>Anthid</u> ) – <u>Anthidium</u>		Ant( <u>Mel</u> ) – <u>Melissodes</u>		
lb – large bee	<u>Cer</u> – <u>Ceratina</u>	Meg( <u>Coel</u> ) – <u>Coelyoxis</u>		Ant( <u>urb</u> ) – <u>Anthophora urbana</u>		
--(l) – large	H – Halictid	Meg( <u>Osm</u> ) – <u>Osmia</u>				
--(s) – small	H( <u>Aga</u> ) – <u>Agapostemon</u>	And – Andrenid				